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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY-DOCKET NO.	CONFIRMATION NO.
09/827,013	04/05/2001	Stephen A. Empedocles	19916003700US	3462

20350 7590 09/08/2003

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EXAMINER

GAGLIARDI, ALBERT J

ART UNIT PAPER NUMBER

2878

DATE MAILED: 09/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/827,013

Applicant(s)

EMPEDOCLES ET AL.

Examiner

Albert J. Gagliardi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 June 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-89 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-71 and 83-89 is/are allowed.
- 6) ☒ Claim(s) 72-82 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 8.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Comment on Submissions

1. The response filed 16 June 2003 has been entered as Amendment A.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

3. The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).
4. Claims 72, 74-75, and 81 are rejected under 35 U.S.C. 102(e) as being anticipated by Kauvar *et al.* (US 6,492,125 B2).

Regarding claim 72, *Kauvar* discloses an inventory label generating method comprising generating a plurality of candidate labels (abstract); selecting a plurality of acceptably distinguishable labels from among the candidate labels by determining wavelength/intensity spectra emitted by the candidate labels when the labels are energized, and by comparing the

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wavelength/intensity spectra of the candidate labels (col. 2, lines 36-53; col. 4, lines 38-41; and Fig. 2).

Regarding claim 74, *Kauvar* discloses that the candidate labels are generated by combining a plurality of markers, each marker emitting a marker signal at an associated wavelength (see generally Figs. 1-2).

Regarding claim 75, *Kauvar* discloses that the method comprises directing excitation energy toward the markers and measuring the wavelength/intensity spectra emitted by the labels (see Fig. 1).

Regarding claim 81, *Kauvar* discloses a method for identifying a plurality of identifiable elements comprising: energizing a plurality labels so that a first marker of each label generates a first signal with a first wavelength peak, at least some of the labels comprising multiple-signal labels, each multiple signal label having a second marker generating a second signal with a second wavelength peak (see generally Fig. 3); measuring a first wavelength of the first wavelength peak (col. 4, lines 46-48); for each multiple-signal label, measuring a second wavelength of the second wavelength peak at at least a predetermined minimum wavelength separation from the first wavelength of the associated first peak (col. 4, lines 46-48); and identifying the labels (abstract).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 76-80 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Kauvar*.

Regarding claim, 76 and 77, modeling techniques are well known and, absent some degree of criticality, determining the wavelength/intensity spectra by modeling a combination of the marker signals and calculating at least one of the signals by modeling emissions would have been a matter of obvious design choice within the skill of a person of ordinary skill in the art depending on the needs of the particular application.

Regarding claim 78, making adjustments based on measured values is considered as a routine aspect using modeling techniques to determine appropriate labels.

Regarding claim 79, *Kauvar* suggests measuring the signals by energizing the markers (see Fig. 1).

Regarding claim 80, the steps of comparing the candidate labels with a library of distinguishable labels to determine the acceptability, and adding them to the library if they are considered as obvious, if not inherent aspects of creating a library.

8. Claims 73 and 82 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Kauvar* in view of Bawendi *et al.* (US 6,326,144 B1).

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Regarding claim 73, although the method disclosed by *Kauvar* is directed to the use of dyes, *Bawendi* discloses that the use of nanocrystal type labels provides advantages over typical dyes (col. 3, line 60 to col. 4, line 6). As such, it would have been obvious to a person of ordinary skill in the art to modify the method disclosed by *Kauvar* so as to use nanocrystals in view of the benefits of such type of labels.

Regarding claim 82, *Bawendi* discloses that the FWHM of nanocrystal type labels is in the order of 40 to 60 nm or less. As such, identifiable elements using nanocrystal labels (see explanation regarding claim 73 above), would inherently have a predetermined minimum wavelength separation at least as large as a FWHM of one of the associated first peak and associated second peak in view of the predetermined ranges disclosed *Kauvar* (i.e., red, blue, green).

Allowable Subject Matter

9. Claims 1-71 and 83-89 are allowed.

10. The following is a statement of reasons for the indication of allowable subject matter:

Regarding independent claim 41, 65, 67 and 89, as noted by applicant in his response, the prior art (*Bawendi et al.* -- US 6,326,144, for example) does not disclose or fairly suggest the methods (as amended) for sensing a plurality of intermingled labels by identifying first and second labels by measuring first and second discrete wavelengths from among a plurality of predetermined discrete wavelengths within separated first and second ranges, and wherein the discrete wavelengths within each range are sufficiently close that the two signals at adjacent discrete wavelengths would substantially overlap. The examiner notes that *Bawendi* teaches away from such a method in that the emission spectra of the discrete signals are described as

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very narrow with an absence of a tailing region, suggesting that it is important that adjacent spectra do not substantially overlap.

Regarding independent claims 1, 20, and 21, as noted by applicant in his response, the prior art (Libbey, III *et al.* -- US 6,384,409 -- and Oshima *et al.* -- US 5,932,139 --) does not disclose or fairly suggest an identification system (claim 1), method (claim 20), or library of elements (claim 21) (as amended) comprising a labels including reference markers and other markers wherein the labels generate wavelength/intensity spectra and wherein the analyzer calibrates at least one of a wavelengths and an intensity of the spectra using signals from the reference markers. As pointed out by applicant, the Oshima reference teaches using reference markers for calibrating time (and therefore surface area location), not for calibrating wavelength or intensity.

The remaining claims are allowed on the basis of their dependency.

Conclusion

11. Applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on 16 June 2003 prompted the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609(B)(2)(i). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

12. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Albert J. Gagliardi whose telephone number is (703) 305-0417. The examiner can normally be reached on Monday thru Friday from 9 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on (703) 308-4852. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



Albert J. Gagliardi
Examiner
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AJG